

Pascal Horton

Environmental Engineer (PhD)

Email: pascal.horton@giub.unibe.ch

Mobile: +41 76 355 77 90

Address: Rohrmatt 26, 3126 Kaufdorf, Suisse

Nationality: Swiss

Birth date: 28.12.1979



Professional goals

I am highly interested in meteorology and hydrology, particularly extreme events. I also like computer sciences and programming and using these skills to build efficient tools and models for science. I look for challenges and major projects where innovation and research has a special place.

Experience

Institute of Geography and OCCR, University of Bern

Post-doc in the hydrology group / 2016 - present

Project on the climate change impact on hydrological extremes. Participation to lectures.

Terranum Sàrl (partner)

Project leader in precipitation forecasting (downscaling) / 2013 - 2016

Project leader for the optimization of the analogue method (for statistical precipitation forecasting) using genetic algorithms, for flood forecasting services in France.

In charge of the developments of the AtmoSwing software. Improvements in the software for flood forecasting in the upper Rhone catchment.

Expertise and developments in gravitational natural hazards / 2013 - 2016

Modifications in Flow-R for rockfall simulation (applied to the Canton of Fribourg) and rock avalanches (applied in Norway). Indicative mapping of debris flow hazard and snow avalanches in the pre-Alps of Canton Fribourg and modeling of snow avalanches for a region in Norway.

Faculty of Geosciences and Environment, UNIL

Lecturer / 2015 - 2016

In charge of the course "Introduction to Matlab"

Institute of Earth Sciences, UNIL

Analyst - Developer / 2013 - 2014

Improvements of Flow-R (Matlab) and AtmoSwing (C++) in order to setup a free distribution on the Internet. Implementation of several websites.

Institute of Geomatics and Risk Analysis, UNIL

PhD thesis / 2009 - 2012

PhD thesis in the field of probabilistic forecasting of extreme precipitation events, as part of the MINERVE project aiming at developing forecasting tools to anticipate floods of the Rhone river. Title: *Improvements and global optimization of the analogue method for statistical precipitation forecasting. Development of an operational forecasting tool and its application to the Rhône catchment upstream of Lake Geneva.*

Development of the AtmoSwing software (precipitation forecasting) / 2009 - 2012

Development of the AtmoSwing software (in C++) for operational forecasting of rainfall. Development of a global optimization by means of genetic algorithms.

Development of the Flow-R software (debris flows susceptibility) / 2007 - 2009

Development of Flow-R, a Matlab software for susceptibility assessment to debris flows at a

regional level (www.flow-r.org).

Expertise in gravitational natural hazards / 2007 - 2009

Realization of the indicative hazard map for debris flows in the Canton of Vaud, hazard mapping of debris flows and snow avalanches in Pakistan.

Sodelo Sàrl

Achievement of a hydrological study / 2007

Achievement of a hydrological study of the Tinière catchment for hydrological hazards mapping.

Hydrology and Land Improvement Laboratory, EPFL

Contribution to a book on Hydrology / 2006

Contribution to the achievement of a book on hydrology: creation of exercises and figures.

Institute of Geomatics and Risk Analysis, UNIL

Achievement of an exploratory study on statistical rainfall forecasting / 2005 - 2006

First steps of a research project in the field of extreme precipitation forecasting with a statistical approach. Development of a model in Matlab, exploratory research and analysis of the first results.

Hydrology and Land Improvement Laboratory, EPFL

Achievement of a study on the global warming impact on hydrological regimes / 2005

Achievement of a study on the global warming impact on hydrological regimes in the Swiss Alps by a modeling approach for the estimation of future hydropower generation (OFENCC Project, commissioned by the Swiss Federal Office of Energy). Improvement of a hydrological model written in Matlab.

Participation in various hydrological studies / 2004 - 2005

Contribution to the CONSECRU project (CONcept de SEcurité contre les risques liés aux CRUes): Development of tools and various contributions. / Contribution to the VICAIRE project (VlRtual CAmpus In hydrology and water REsources, for UNESCO). / Development of the website of the Environmental Science and Technology Institute.

CRC for Catchment Hydrology, Monash University, Australia.

Master work / 2003 - 2004

Feasibility study for the restoration of the quality of urban streams using alternative management techniques (Water Sensitive Urban Design tools).

IT

Software

GIS: QGIS, ArcGIS

Development: Visual Studio, GCC, CLion, PyCharm, PhpStorm, Mercurial, CMake

Hydrology: Hec-Ras, HQx-meso-CH, Flo-2D, Flow-R

Office: MS Office, LibreOffice, LaTeX

Good knowledge of many software in the Windows and Linux environment.

Programming languages

Mastering C++, Matlab, and PHP.

Experiences in Python and R.

AtmoSwing software development in C ++ / Development of Flow-R and various models in Matlab / creation of a university course for teaching Matlab / development of various websites in PHP.

Education

PhD in Geosciences and Environment

University of Lausanne (UNIL) / 2012

Graduated in Environmental Sciences and Engineering

Swiss Federal Institute of Technology (EPFL) / 2004

Baccalauréat in Science
Beaulieu Gymnasium, Lausanne / 1999

Other courses

Programming

R Programming - Coursera Verified Certificates (R5C5FD9G3R) / 2015

Introduction à la programmation orientée objet (en C++) - Coursera / 2015

Data Science

The Data Scientist's Toolbox - Coursera Verified Certificates (JSJ6CBE22F) / 2015

Languages

French: mother tongue

English: good level (spoken, read, written)

German: basic level

Various

Other experiences

In charge of the booking for a new music festival (13 bands) / 2005 – 2007

Manager, vocal and guitarist in a pop-rock band / 1999 – 2007

Chief in a boy scout group; responsible for the organization of camps / 1997 – 2002

References

On demand